



## Sequence Listing

<110> Baker, Kevin Botstein, David Eaton, Dan Ferrara, Napoleone Filvaroff, Ellen Gerritsen, Mary Goddard, Audrey Godowski, Paul Grimaldi, Christopher Gurney, Austin Hillan, Kenneth Kljavin, Ivar Napier, Mary Roy, Margaret Tumas, Daniel Wood, William

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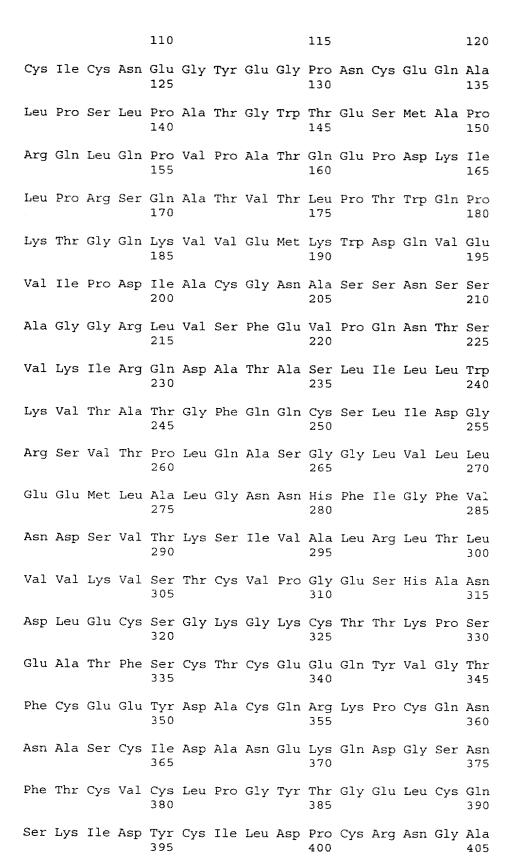
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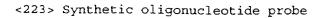
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35 40 45

Val Tyr Gln Lys Gly Leu Gln Asp Val Asn Leu Arg Asn Phe Ser
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Tyr Gly Gln Thr Ser Leu Asp Arg Leu Arg Asp Gly Leu Val Gly
65 70 75

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Asp Ala Leu Arg Leu Thr Leu Glu Gln Ile Asp Leu Ile Arg Arg 95 100 105

Met Cys Ala Ser Tyr Ser Glu Leu Glu Leu Val Thr Ser Ala Lys 110 115

Ala Leu Asn Asp Thr Gln Lys Leu Ala Cys Leu Ile Gly Val Glu 125 \$130\$ 135

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Tyr Met Leu Gly Val Arg Tyr Leu Thr Leu Thr His Thr Cys Asn 155 160 165

Thr Pro Trp Ala Glu Ser Ser Ala Lys Gly Val His Ser Phe Tyr 170 175 180





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Lys	Trp	Ser	Val	Ser 410	Glu	Ser	Ser	Pro	His 415	Met	Ala	Pro	Val	Leu 420
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Lys T	rp S	Ser	Val	Ser 410	Glu	Ser	Ser	Pro	His 415	Pro	Asp	Lys	Thr	His 420
Thr C	ys P	ro	Pro	Cys 425	Pro	Ala	Pro	Glu	Leu 430	Leu	Gly	Gly	Pro	Ser 435
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- <213> Homo Sapien
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- Pro Pro Pro Leu Leu Pro Leu Leu Leu Leu Cys Val Leu Gly 20 25 30
- Ala Pro Arg Ala Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro 35 40 45
- Gln Asp Pro Thr Leu Leu Ile Gly Ser Ser Leu Leu Ala Thr Cys
  50 55 60



Ser	Val	His	Gly	Asp 65	Pro	Pro	Gly	Ala	Thr	Ala	Glu	Gly	Leu	Tyr 75
Trp	Thr	Leu	Asn	Gly 80	Arg	Arg	Leu	Pro	Pro 85	Glu	Leu	Ser	Arg	Val 90
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Ser	Arg	Gln	Arg	Ser 110	Gly	Asp	Asn	Leu	Val 115	Cys	His	Ala	Arg	Asp 120
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His	Thr	Asn	Tyr	Ser 170	Leu	Lys	Tyr	Lys	Leu 175	Arg	Trp	Tyr	Gly	Gln 180
Asp	Asn	Thr	Cys	Glu 185	Glu	Tyr	His	Thr	Val 190	Gly	Pro	His	Ser	Cys 195
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Val	Glu	Ala	Thr	Asn 215	Arg	Leu	Gly	Ser	Ala 220	Arg	Ser	Asp	Val	Leu 225
Thr	Leu	Asp	Ile	Leu 230	Asp	Val	Val	Thr	Thr 235	Asp	Pro	Pro	Pro	Asp 240
Val	His	Val	Ser	Arg 245	Val	Gly	Gly	Leu	Glu 250	Asp	Gln	Leu	Ser	Val 255
Arg	Trp	Val	Ser	Pro 260	Pro	Ala	Leu	Lys	Asp 265	Phe	Leu	Phe	Gln	Ala 270
Lys	Tyr	Gln	Ile	Arg 275	Tyr	Arg	Val	Glu	Asp 280	Ser	Val	Asp	Trp	Lys 285
Val	Val	Asp	Asp	Val 290	Ser	Asn	Gln	Thr	Ser 295	Cys	Arg	Leu	Ala	Gly 300
Leu	Lys	Pro	Gly	Thr 305	Val	Tyr	Phe	Val	Gln 310	Val	Arg	Cys	Asn	Pro 315
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Ser	His	Pro	Thr	Ala 335	Ala	Ser	Thr	Pro	Arg 340	Ser	Glu	Arg	Pro	Gly 345
Pro	Gly	Gly	Gly	Ala	Cys	Glu	Pro	Arg	Gly	Gly	Glu	Pro	Ser	Ser

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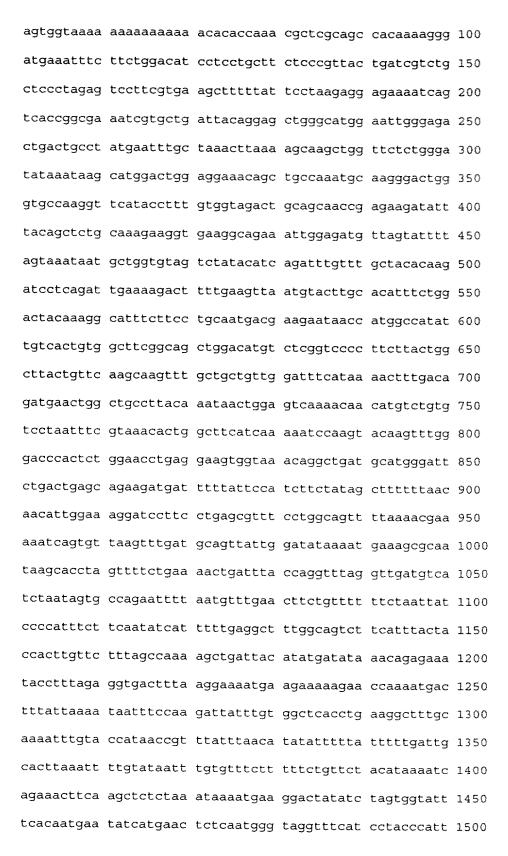
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<212> PRT

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<400> 37

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Arg Lys Ser Val Thr Gly Glu Ile Val Leu Ile Thr Gly Ala Gly
35 40 45

His Gly Ile Gly Arg Leu Thr Ala Tyr Glu Phe Ala Lys Leu Lys
50 55 60

Ser Lys Leu Val Leu Trp Asp Ile Asn Lys His Gly Leu Glu Glu
65 70 75

Thr Ala Ala Lys Cys Lys Gly Leu Gly Ala Lys Val His Thr Phe
80 85

Val Val Asp Cys Ser Asn Arg Glu Asp Ile Tyr Ser Ser Ala Lys 95 100 105

Lys Val Lys Ala Glu Ile Gly Asp Val Ser Ile Leu Val Asn Asn 110 115 120

Ala Gly Val Val Tyr Thr Ser Asp Leu Phe Ala Thr Gln Asp Pro 125 130 135

Gln Ile Glu Lys Thr Phe Glu Val Asn Val Leu Ala His Phe Trp 140 145 150

Thr Thr Lys Ala Phe Leu Pro Ala Met Thr Lys Asn Asn His Gly
155 160 165

His Ile Val Thr Val Ala Ser Ala Ala Gly His Val Ser Val Pro

Phe Leu Leu Ala Tyr Cys Ser Ser Lys Phe Ala Ala Val Gly Phe 185 190 195

His Lys Thr Leu Thr Asp Glu Leu Ala Ala Leu Gln Ile Thr Gly

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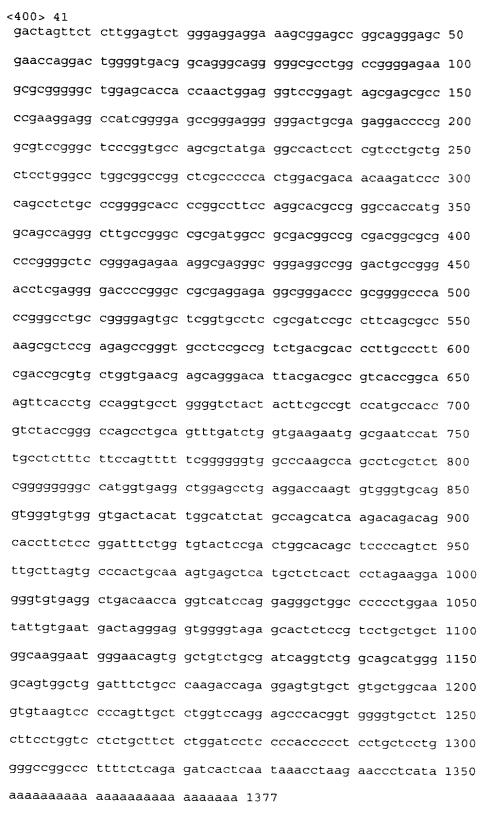
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His Pro Gly Leu Pro Gly Thr Pro Gly His His Gly Ser Gln Gly 35 40 45

Leu Pro Gly Arg Asp Gly Arg Asp Gly Arg Asp Gly Ala Pro Gly
50 55 60

Ala Pro Gly Glu Lys Gly Glu Gly Gly Arg Pro Gly Leu Pro Gly
65 70 75

Pro Arg Gly Asp Pro Gly Pro Arg Gly Glu Ala Gly Pro Ala Gly 80 85 90

Pro Thr Gly Pro Ala Gly Glu Cys Ser Val Pro Pro Arg Ser Ala 95 100 105

Phe Ser Ala Lys Arg Ser Glu Ser Arg Val Pro Pro Pro Ser Asp 110 115 120

Ala Pro Leu Pro Phe Asp Arg Val Leu Val Asn Glu Gln Gly His
125
130

Tyr Asp Ala Val Thr Gly Lys Phe Thr Cys Gln Val Pro Gly Val 140 145 150

Tyr Tyr Phe Ala Val His Ala Thr Val Tyr Arg Ala Ser Leu Gln 155 160 165

Phe Asp Leu Val Lys Asn Gly Glu Ser Ile Ala Ser Phe Phe Gln 170 175 180

Phe Phe Gly Gly Trp Pro Lys Pro Ala Ser Leu Ser Gly Gly Ala 185 190 195

Met Val Arg Leu Glu Pro Glu Asp Gln Val Trp Val Gln Val Gly
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Val Phe Ala

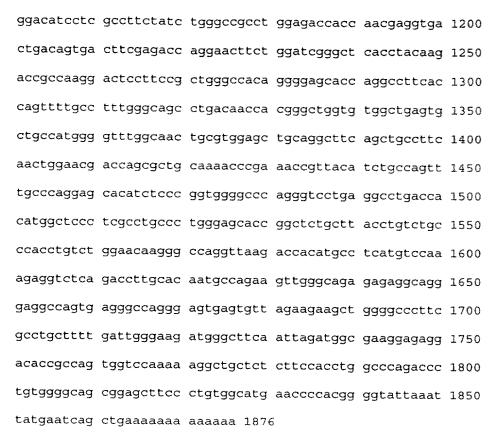
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gggggcatct cetggetgtg cteetggeee teettggeac caectgggea 200
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<211> 455

<212> PRT

<213> Homo Sapien

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Pro Gln Leu Gln Glu Gln Ala Pro Met Ala Gly Ala Leu Asn Arg 35 40 45

Lys Glu Ser Phe Leu Leu Leu Ser Leu His Asn Arg Leu Arg Ser
50 55 60

Trp Val Gln Pro Pro Ala Ala Asp Met Arg Arg Leu Asp Trp Ser
65 70 75

Asp Ser Leu Ala Gln Leu Ala Gln Ala Arg Ala Ala Leu Cys Gly
80 85 90

Ile Pro Thr Pro Ser Leu Ala Ser Gly Leu Trp Arg Thr Leu Gln
95 100 105

Val Gly Trp Asn Met Gln Leu Leu Pro Ala Gly Leu Ala Ser Phe

				110					115					120
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His	Ala	Ala	Gly	Glu 140	Cys	Ala	Arg	Asn	Ala 145		Cys	Thr	His	Tyr 150
Thr	Gln	Leu	Val	Trp 155	Ala	Thr	Ser	Ser	Gln 160	Leu	Gly	Cys	Gly	Arg 165
His	Leu	Cys	Ser	Ala 170	Gly	Gln	Thr	Ala	Ile 175		Ala	Phe	Val	Cys 180
Ala	Tyr	Ser	Pro	Gly 185	Gly	Asn	Trp	Glu	Val 190	Asn	Gly	Lys	Thr	Ile 195
Ile	Pro	Tyr	Lys	Lys 200	Gly	Ala	Trp	Cys	Ser 205	Leu	Cys	Thr	Ala	Ser 210
Val	Ser	Gly	Cys	Phe 215	Lys	Ala	Trp	Asp	His 220	Ala	Gly	Gly	Leu	Cys 225
Glu	Val	Pro	Arg	Asn 230	Pro	Суѕ	Arg	Met	Ser 235	Cys	Gln	Asn	His	Gly 240
Arg	Leu	Asn	Ile	Ser 245	Thr	Суѕ	His	Cys	His 250	Cys	Pro	Pro	Gly	Tyr 255
Thr	Gly	Arg	Tyr	Cys 260	Gln	Val	Arg	Cys	Ser 265	Leu	Gln	Cys	Val	His 270
Gly	Arg	Phe	Arg	Glu 275	Glu	Glu	Cys	Ser	Cys 280	Val	Cys	Asp	Ile	Gly 285
Tyr	Gly	Gly	Ala	Gln 290	Cys	Ala	Thr	Lys	Val 295	His	Phe	Pro	Phe	His 300
Thr	Cys	Asp	Leu	Arg 305	Ile	Asp	Gly	Asp	Cys 310	Phe	Met	Val	Ser	Ser 315
Glu	Ala	Asp	Thr	Tyr 320	Tyr	Arg	Ala	Arg	Met 325	Lys	Cys	Gln	Arg	Lys 330
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Leu	Ala	Phe	Tyr	Leu 350	Gly	Arg	Leu	Glu	Thr 355	Thr	Asn	Glu	Val	Thr 360
Asp	Ser	Asp	Phe	Glu 365	Thr	Arg	Asn	Phe	Trp 370	Ile	Gly	Leu	Thr	Tyr 375
Lys	Thr	Ala	Lys	Asp 380	Ser	Phe	Arg	Trp	Ala 385	Thr	Gly	Glu	His	Gln 390
Ala	Phe	Thr	Ser	Phe 395	Ala	Phe	Gly	Gln	Pro 400	Asp	Asn	His		Leu 405

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cttcggagca ggatggactc agggtcccga ggcaagtcag actgttgcag 200



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<211> 694

<212> PRT

<213> Homo Sapien

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Asp Gly Leu Arg Val Pro Arg Gln Val Arg Leu Leu Gln Arg Leu
35 40 45

Lys Thr Lys Pro Leu Met Thr Glu Phe Ser Val Lys Ser Thr Ile
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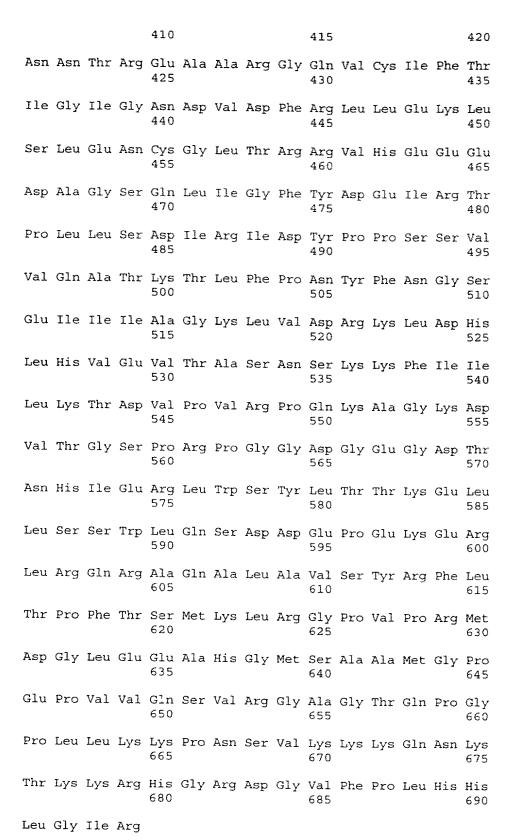
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Arg	Leu	Gly	Lys	Tyr 170	Glu	His	Ser	Ile	Ser 175	Val	Arg	Pro	Gln	Gln 180
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Arg	Gly	Ser	Gly	Arg 215	Gly	Glu	Asp	Asp	Ser 220	Gly	Pro	Pro	Pro	Ser 225
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Gly	Asp	Ile	Gln	Val 275	Leu	Asn	Gly	Tyr	Phe 280	Val	His	Tyr	Phe	Ala 285
Pro	Lys	Asp	Leu	Pro 290	Pro	Leu	Pro	Lys	Asn 295	Val	Val	Phe	Val	Leu 300
Asp	Ser	Ser	Ala	Ser 305	Met	Val	Gly	Thr	Lys 310	Leu	Arg	Gln	Thr	Lys 315
Asp	Ala	Leu	Phe	Thr 320	Ile	Leu	His	Asp	Leu 325	Arg	Pro	Gln	Asp	Arg 330
Phe	Ser	Ile	Ile	Gly 335	Phe	Ser	Asn	Arg	Ile 340	Lys	Val	Trp	Lys	Asp 345
His	Leu	Ile	Ser	Val 350	Thr	Pro	Asp	Ser	Ile 355	Arg	Asp	Gly	Lys	Val 360
Tyr	Ile	His	His	Met 365	Ser	Pro	Thr	Gly	Gly 370	Thr	Asp	Ile	Asn	Gly 375
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Ser	Gly	Ile	Gly	Asp 395	Arg	Ser	Val	Ser	Leu 400	Ile	Val	Phe	Leu	Thr 405
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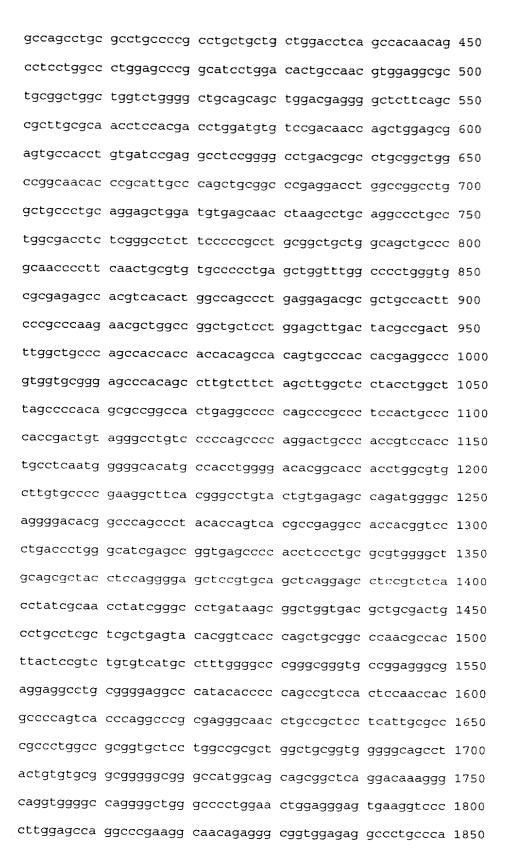
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Pro	Pro	Thr	Thr	Ile 335	Pro	Pro	Pro	Thr	Thr 340	Thr	Thr	Thr	Thr	Th: 345
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Ala	Gly	Glu	Glu	Gly 365	Ser	Ile	Arg	Ala	Va! 370	Asp	His	Ala	Val	Ile 379
Gly	Gly	Val	Val	Ala 380	Val	Val	Val	Phe	Ala 385	Met	Leu	Cys	Leu	Let 39(
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Thr	His	Glu	Ala	Lys 410	Gly	Ala	Asp	Asp	Ala 415	Ala	Asp	Ala	Asp	Th:
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Ser Gln Pro Gln Thr Val Phe Cys Thr Ala Arg Gln Gly Thr Thr 35 40 45

Val Pro Arg Asp Val Pro Pro Asp Thr Val Gly Leu Tyr Val Phe
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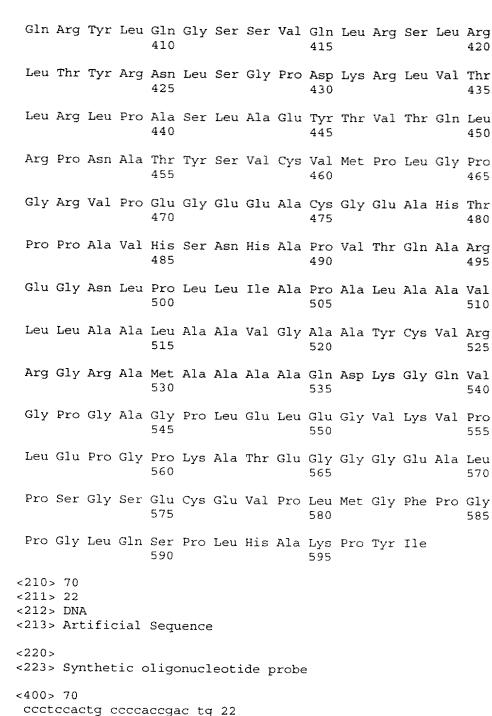
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Leu Leu Ala Leu Glu Pro Gly Ile Leu Asp Thr Ala Asn Val Glu



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Asn	Gln	Leu	Glu	Arg 155	Val	Pro	Pro	Val	Ile 160	Arg	Gly	Leu	Arg	Gly 165
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Arg	Pro	Glu	Asp	Leu 185	Ala	Gly	Leu	Ala	Ala 190	Leu	Gln	Glu	Leu	Asp 195
Val	Ser	Asn	Leu	Ser 200	Leu	Gln	Ala	Leu	Pro 205	Gly	Asp	Leu	Ser	Gly 210
Leu	Phe	Pro	Arg	Leu 215	Arg	Leu	Leu	Ala	Ala 220	Ala	Arg	Asn	Pro	Phe 225
Asn	Суѕ	Val	Cys	Pro 230	Leu	Ser	Trp	Phe	Gly 235	Pro	Trp	Val	Arg	Glu 240
Ser	His	Val	Thr	Leu 245	Ala	Ser	Pro	Glu	Glu 250	Thr	Arg	Суѕ	His	Phe 255
Pro	Pro	Lys	Asn	Ala 260	Gly	Arg	Leu	Leu	Leu 265	Glu	Leu	Asp	Tyr	Ala 270
Asp	Phe	Gly	Cys	Pro 275	Ala	Thr	Thr	Thr	Thr 280	Ala	Thr	Val	Pro	Thr 285
Thr	Arg	Pro	Val	Val 290	Arg	Glu	Pro	Thr	Ala 295	Leu	Ser	Ser	Ser	Leu 300
Ala	Pro	Thr	Trp	Leu 305	Ser	Pro	Thr	Ala	Pro 310	Ala	Thr	Glu	Ala	Pro 315
Ser	Pro	Pro	Ser	Thr 320	Ala	Pro	Pro	Thr	Val 325	Gly	Pro	Val	Pro	Gln 330
Pro	Gln	Asp	Cys	Pro 335	Pro	Ser	Thr	Cys	Leu 340	Asn	Gly	Gly	Thr	Cys 345
His	Leu	Gly	Thr	Arg 350	His	His	Leu	Ala	Cys 355	Leu	Cys	Pro	Glu	Gly 360
Phe	Thr	Gly	Leu	Tyr 365	Cys	Glu	Ser	Gln	Met 370	Gly	Gln	Gly	Thr	Arg 375
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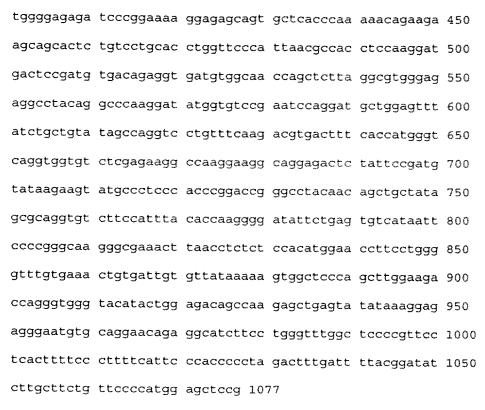
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Met Ala Leu Leu Thr Gln Gln Thr Glu Leu Gln Ser Leu Arg Arg 50 55 60

Glu Val Ser Arg Leu Gln Gly Thr Gly Gly Pro Ser Gln Asn Gly
65 70 75

Glu Gly Tyr Pro Trp Gln Ser Leu Pro Glu Gln Ser Ser Asp Ala 80 85 90

Leu Glu Ala Trp Glu Asn Gly Glu Arg Ser Arg Lys Arg Arg Ala 95 100 105

Val Leu Thr Gln Lys Gln Lys Gln His Ser Val Leu His Leu
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 Val
 Pro
 Ile
 Asn
 Ala 125
 Thr
 Ser
 Lys
 Asp 130
 Ser
 Asp 140
 Thr 135

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 Trp
 Gln
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 Gln
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 Arg Ile Gln Asp 160
 Gly Val Tyr Leu Leu 165

 Tyr
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 Phe Gln Asp Val Thr Phe Tyr
 Phe Thr Met Gly 180

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 Gly Gln Gly Arg 190
 Arg 190
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 Cys
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 Pro Ser His Pro 205
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Pro Pro Asp His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr
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Arg Pro Ser Gln Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg

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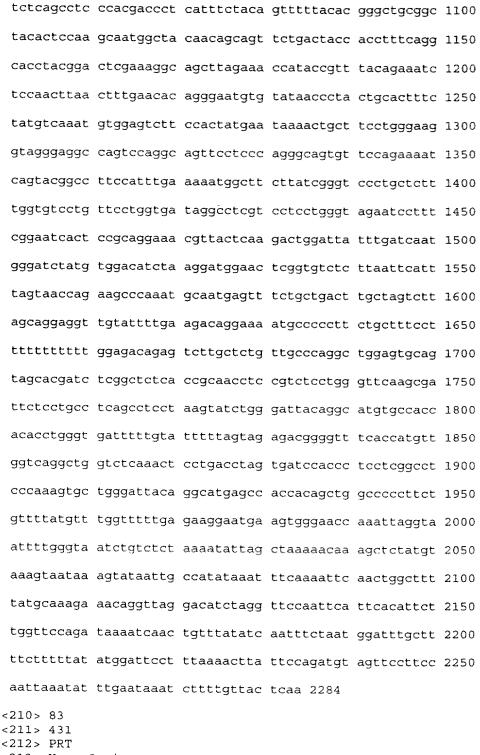
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Ile Met Lys Asn	Glu Glu ( 215	Glu Val V	al Ile Leu 220	Phe Ala Gln	Val 225							
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ctcccagcta cggtggcagt tgcttctcca cataccacct cggctactcc 950
aaagecegee accettetae ceaceaatge tteagtgaca cettetggga 1000
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<sup>&</sup>lt;213> Homo Sapien

<sup>&</sup>lt;400> 83

Met Phe Phe Gly Gly Glu Gly Ser Leu Thr Tyr Thr Leu Val Ile





Ile Cys Phe Leu Thr Leu Arg Leu Ser Ala Ser Gln Asn Cys Leu Lys Lys Ser Leu Glu Asp Val Val Ile Asp Ile Gln Ser Ser Leu Ser Lys Gly Ile Arg Gly Asn Glu Pro Val Tyr Thr Ser Thr Gln Glu Asp Cys Ile Asn Ser Cys Cys Ser Thr Lys Asn Ile Ser Gly Asp Lys Ala Cys Asn Leu Met Ile Phe Asp Thr Arg Lys Thr Ala Arg Gln Pro Asn Cys Tyr Leu Phe Phe Cys Pro Asn Glu Glu Ala Cys Pro Leu Lys Pro Ala Lys Gly Leu Met Ser Tyr Arg Ile Ile 115 Thr Asp Phe Pro Ser Leu Thr Arg Asn Leu Pro Ser Gln Glu Leu 125 130 Pro Gln Glu Asp Ser Leu Leu His Gly Gln Phe Ser Gln Ala Val Thr Pro Leu Ala His His His Thr Asp Tyr Ser Lys Pro Thr Asp 155 Ile Ser Trp Arg Asp Thr Leu Ser Gln Lys Phe Gly Ser Ser Asp His Leu Glu Lys Leu Phe Lys Met Asp Glu Ala Ser Ala Gln Leu Leu Ala Tyr Lys Glu Lys Gly His Ser Gln Ser Ser Gln Phe Ser Ser Asp Gln Glu Ile Ala His Leu Leu Pro Glu Asn Val Ser Ala 220 225 Leu Pro Ala Thr Val Ala Val Ala Ser Pro His Thr Thr Ser Ala Thr Pro Lys Pro Ala Thr Leu Leu Pro Thr Asn Ala Ser Val Thr 250 255 Pro Ser Gly Thr Ser Gln Pro Gln Leu Ala Thr Thr Ala Pro Pro Val Thr Thr Val Thr Ser Gln Pro Pro Thr Thr Leu Ile Ser Thr 280 285 Val Phe Thr Arg Ala Ala Ala Thr Leu Gln Ala Met Ala Thr Thr

Ala Val Leu Thr Thr Thr Phe Gln Ala Pro Thr Asp Ser Lys Gly





	305	310	i.	315								
Ser Leu Glu Thr	Ile Pro Phe 320	Thr Glu Ile		Thr Leu 330								
Asn Thr Gly Asn	Val Tyr Asn 335	Pro Thr Ala		Ser Asn 345								
Val Glu Ser Ser	Thr Met Asn 350	Lys Thr Ala	_	Gly Arg 360								
Glu Ala Ser Pro	Gly Ser Ser 365	Ser Gln Gly 370		Glu Asn 375								
Gln Tyr Gly Leu	Pro Phe Glu 380	Lys Trp Leu 385		Ser Leu 390								
Leu Phe Gly Val	Leu Phe Leu 395	Val Ile Gly 400		Leu Gly 405								
Arg Ile Leu Ser	Glu Ser Leu 410	Arg Arg Lys		Arg Leu 420								
Asp Tyr Leu Ile	Asn Gly Ile 425	Tyr Val Asp 430										
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Leu Ile Pro Asp Ala Pro Leu Ser Ser Ala Ala Tyr Ser Ile Arg 35 40 45

Ser Ile Gly Glu Arg Pro Val Leu Lys Ala Pro Val Pro Lys Arg
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Gln Lys Cys Asp His Trp Thr Pro Cys Pro Ser Asp Thr Tyr Ala 65 70 75

Tyr Arg Leu Leu Ser Gly Gly Gly Arg Ser Lys Tyr Ala Lys Ile 80 85 90

Cys Phe Glu Asp Asn Leu Leu Met Gly Glu Gln Leu Gly Asn Val 95 100 105

Ala Arg Gly Ile Asn Ile Ala Ile Val Asn Tyr Val Thr Gly Asn 110 115 120

Val Thr Ala Thr Arg Cys Phe Asp Met Tyr Glu Gly Asp Asn Ser 125 130 135

Gly Pro Met Thr Lys Phe Ile Gln Ser Ala Ala Pro Lys Ser Leu 140 145 150

Leu Phe Met Val Thr Tyr Asp Asp Gly Ser Thr Arg Leu Asn Asn 155 160 165

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                                      175
                                                           180
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